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## AGRICULTURAL TRAINING COURSES FOR EMPLOYED TEACHERS

With a Suggested Reading Course in Agriculture Based on Farmers' Bulletins.

By EDWIN R. JACKSON,  
*Assistant in Agricultural Education.*

### INTRODUCTION.

Perhaps the most noteworthy feature in the educational progress of the Nation during recent years has been the development of agricultural education, particularly in the public schools. From May, 1910, to March, 1912, the total number of institutions giving courses in agriculture increased from 863 to 2,575, or at the rate of more than 76 each month; and this increase is found almost entirely in schools of the secondary grade. This does not take into account the vast number of elementary and rural schools into which some instruction in agriculture has been introduced of which no definite record is obtainable, but of which there must be an enormous number, since in at least 19 States agriculture is required by law to be taught in the common schools.<sup>1</sup>

It is altogether probable that the spread of agricultural instruction would have been even more rapid had it not been for the difficulty which has been encountered in procuring teachers able to give instruction in the subject. Responding to the demand for teachers of agriculture, the normal schools are very generally introducing courses in agriculture, while many of the agricultural colleges, on the other hand, are offering special courses for teachers. This has resulted in providing a limited number of trained teachers—hardly enough, however, to supply the needs of the secondary schools and special schools of agriculture. Few, indeed, of the normal or college trained teachers find employment in the rural common schools.

<sup>1</sup> The States in which agriculture is required to be taught either in all common schools or at least in rural schools are Alabama, Arkansas, Georgia, Iowa, Louisiana, Mississippi, Missouri, North Carolina, North Dakota, Oklahoma, Ohio, Oregon, South Carolina, South Dakota, Tennessee, Texas, Washington, West Virginia, and Wisconsin. In some of these States the subject is not required by legislative act, but is put into the required course of study prescribed by the State superintendent of public instruction pursuant to authority of law. In addition to these, Idaho, Pennsylvania, and Utah require agriculture taught in all rural high schools.

The result is that while there has been a widespread demand for the teaching of agriculture in the rural schools, the teachers who are found in these schools are generally poorly equipped to give such instruction.

Added to the urgent demand from the schools themselves that teachers should have training in agriculture, there has been the spur of legislation in some 19 States in which an examination in agriculture is now one of the prerequisites for obtaining a teachers' certificate.<sup>1</sup>

Thus it will be seen that one of the most urgent things which now needs to be done in order to promote the development of agricultural education is to provide better means of training teachers in agriculture. This need is especially urgent in the case of teachers already in service in elementary schools. The widespread movement toward the development of teacher-training courses in high schools and the parallel growth of agricultural courses in these schools will undoubtedly result in a few years in producing teachers for the common schools who have had considerably more training, both professionally and in scientific agriculture, than those now in service. The immediate need, therefore, seems to be to provide means by which teachers now engaged in regular school work, who have not had the opportunity to study agriculture, and who can not afford to take a year or more away from their employment in order to pursue a course of study at an agricultural school, may still receive a working knowledge of the subject in order to keep abreast of the times, as well as to comply with the requirements of the law in those States where agriculture must be taught.

With a view to ascertaining just what means are now open to employed teachers, by which they may acquire agricultural training and at the same time continue in service, this office has undertaken an investigation of the subject among the educational institutions of the country, and the report of this investigation is included in this bulletin.

## MEANS BY WHICH EMPLOYED TEACHERS MAY ACQUIRE AGRICULTURAL TRAINING.

### SUMMER COURSES.

Without doubt the most popular as well as the most efficient means of giving training to employed teachers are the summer courses offered by the colleges and normal schools, and a large proportion of these include more or less complete courses in agriculture. Since these summer sessions are almost without exception intended specifically for the benefit of teachers, it follows that in the majority of

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<sup>1</sup> These States are: Alabama, Arkansas, Florida, Georgia, Kansas, Louisiana, Mississippi, Missouri, Nebraska, North Carolina, North Dakota (optional), Ohio, Oklahoma, South Carolina (may be required for county certificates), Tennessee, Texas, Virginia (optional), West Virginia, and Wisconsin.

cases courses are presented which aim to help teachers in elementary and secondary schools in the teaching of agriculture, particular attention being given to the pedagogy of the subject.

Most of the summer sessions continue for at least six weeks. Some are in session for as long as 10 or even 12 weeks. In some it is possible for the student of agriculture who wishes to specialize in that subject to have two lessons each day in agriculture, thus completing in 6 weeks, for example, what amounts to 12 weeks' work. In most of the institutions of college grade college credit is allowed for work done at the summer session. In two or three institutions the regular school session continues throughout the summer, the faculty, equipment, and methods of the summer quarter being the same as during any other term of the school year. For the teacher who cares to sacrifice the possible pleasures of the vacation period for the opportunity of self-improvement, and who can afford the expense, the advantages of the summer school over any form of nonresident study are obvious. The instruction is usually of a high class; there are the inspiration and enthusiasm which come from association with others interested in the same line of work; and there are usually adequate equipment and apparatus for laboratory and field work, since the sessions are held at some established college or normal school, so that its entire plant is available to the summer students.

The following is a list of institutions maintaining summer courses in agriculture:

*List of institutions maintaining courses in agriculture in summer sessions.*

State.	Institution.	Location.	Nature of course offered.
Alabama.....	Agricultural and Mechanical College for Negroes.	Normal.....	El. agr. for teachers.
	Alabama Polytechnic Institute.	Auburn.....	El. agr., teaching agr., and gardening.
	Howard College.....	Eastlake.....	
	Tuskegee Institute (colored)...	Tuskegee Institute.	Several courses in gen. agr.
	University of Alabama.....	University.....	El. and sec. agr., biological nat. study, 6 wks.
Arkansas.....	State Normal.....	Conway.....	El. agr.
California.....	State Normal School.....	San Diego.....	El. agr., methods of agr. instr., 6 wks.
	University of California.....	Berkeley.....	El. and sec. agr.; also grad. work. Several special courses for teachers, 6 wks.
Colorado.....	Colorado Agricultural College..	Fort Collins.....	Gen. agr. and gardening, 6 wks.
Connecticut.....	Denver Normal School.....	Denver.....	El. and sec. agr., 6 wks.
	Agricultural College.....	Storrs.....	Nature study and agr. for teachers, 4 wks.
Florida.....	Normal Institute.....	Madison.....	El. agr.
Georgia.....	Rollins College.....	Winter Park.....	
	University of Georgia.....	Athens.....	Nature study, el. and sec. agr., 5 wks.
Idaho.....	Lewiston State Normal School.	Lewiston.....	El. agr. and gardening.
	State Normal School.....	Albion.....	Agr. for teachers.
	University of Idaho.....	Moscow.....	Agr. for teachers in el. and sec. schools, 6 wks.
Illinois.....	Northern Illinois State Normal School.	De Kalb.....	El. agr. and nature study for teachers.
	State Normal University.....	Normal.....	Two 6 wk. sessions, el. and sec. agr., agri. nat. study. A series of 6 courses offered; 2 each year for 3 years.

*List of institutions maintaining courses in agriculture in summer sessions—Continued.*

State.	Institution.	Location.	Nature of course offered.
Illinois .....	State University .....	Urbana .....	Several courses in gen. agr. and special courses for teachers.
	Western Illinois State Normal School .....	Macomb .....	Agr. for teachers of el. and sec. schools.
Indiana .....	Central Normal College .....	Danville .....	12 wk. course, el. agr.
	Goshen College .....	Goshen .....	Several courses for teachers.
	Hanover College .....	Hanover .....	Gen. agr. with lab. and field work.
	Muncie Normal Institute .....	Muncie .....	Gen. agr. courses.
Iowa .....	Purdue University .....	La Fayette .....	Several gen. agr., courses for teachers, 6 wks.
	State College of Agriculture and Mechanic Arts .....	Ames .....	Several courses, gen. agr. and agrl. pedagogy.
	State Teachers' College .....	Cedar Falls .....	El. agr. for teachers, 6 wks.
	Upper Iowa University .....	Fayette .....	El. agr. and gardening, agrl. chem.
Kansas .....	Tabor College .....	Tabor .....	Lectures in agr., gardening.
	Western Normal College .....	Shenandoah .....	El. agr.
	State Agricultural College .....	Manhattan .....	Gen. agr., agr. for rural teachers, 6 wks.
	State Manual Training Normal School .....	Pittsburg .....	El. agr.
	State Normal School .....	Emporia .....	Gen. agr., gardening, methods of teaching agr.
	Western State Normal School .....	Hays .....	El. agr. for teachers, 9 wks.
Kentucky .....	University of Kansas .....	Lawrence .....	Two courses only, sci. basis of agr. and insect life, no gen. agr. offered.
	State University .....	Lexington .....	Agr. for teachers.
Louisiana .....	Western Kentucky State Normal School .....	Bowling Green .....	Nat. study and el. agr., 6 wks.
	State Normal School .....	Natchitoches .....	School in session throughout the year. Agr. taught in summer quarter, 3 mos. Also special summer normal, 6 wks. for teachers.
Maryland .....	State University .....	Baton Rouge .....	Agr. and agr. education, 9 wks.
	Johns Hopkins University .....	Baltimore .....	No gen. agr. but courses nature study as preparation for agr. offered.
Massachusetts .....	Morgan College (colored) .....	do .....	Methods of teaching agr.
	Agricultural College .....	Amherst .....	Several courses in agr. and country life for teachers, 4 wks.
Michigan .....	State Normal School .....	Hyannis .....	School gard., poultry raising, 4 wks.
	Northern State Normal School .....	Marquette .....	Agr. for teachers in rural schools.
Minnesota .....	State Normal School .....	Ypsilanti .....	El. agr., 6 wks.
	University of Michigan .....	Ann Arbor .....	Agrl. botany only, 8 wks.
	Western State Normal School .....	Kalamazoo .....	Nature study and agr., 6 wks.
	Northwest Agricultural School .....	Crookston .....	6 wks. teachers' training school. Courses in el. agr. for teachers.
	State Normal School .....	Mankato .....	El. agr. and agrl. nat. study.
Mississippi .....	State Normal School .....	Moorhead .....	El. agr., 12 wks.
	State Normal School .....	Winona .....	Agr. for teachers.
	State Normal School .....	St. Cloud .....	El. agr., 6 wks., two rec. per day.
	University of Minnesota (Agricultural College) .....	St. Anthony Park .....	Several courses, agr. for teachers, and gen. agr.
	Mississippi Normal College .....	Hattiesburg .....	6 wks. course, el. agr.
Missouri .....	West Central Agricultural School .....	Morris .....	6 wks. teachers' training school. Courses in el. agr. for teachers.
	Central Wesleyan College .....	Warrenton .....	El. agr.
	First District Normal School .....	Kirksville .....	Gen. agr. with field work.
	Missouri Wesleyan .....	Cameron .....	Gen. agr. lab. work, 60-day session.
	Missouri Valley College .....	Marshall .....	El. agr. with lab. work in summer quarter, for teachers.
Nebraska .....	Northwest Normal School .....	Maryville .....	Gen. agr.
	State Normal School .....	Cape Girardeau .....	Gen. and el. agr.
	University of Missouri .....	Columbia .....	Gen. agr.; also special course for teachers, 9 wks.
	Nebraska Wesleyan University .....	University Place .....	El. agr.
	State Normal School .....	Chadron .....	Two courses for teachers.
	State Normal School .....	Peru .....	Gen. agr. during summer quarter. Special course for rural teachers. School continues in regular session during summer quarter.

*List of institutions maintaining courses in agriculture in summer sessions—Continued.*

State.	Institution.	Location.	Nature of course offered.
Nebraska.....	State Normal School.....	Kearney.....	8 wks. course in agr.
	State Normal School.....	Wayne.....	8 wks. agr. for teachers.
	University of Nebraska.....	Lincoln.....	8 wks. session. Several courses for high-school teachers.
Nevada.....	York College.....	York.....	El. agr., 6 wks.
New Hampshire.....	University of Nevada.....	Reno.....	6 wks. course.
	Plymouth Normal School.....	Plymouth.....	El. agr., nature study, gardening, 8 wks.
New Mexico.....	New Mexico Normal University.....	Las Vegas.....	El. agr.
New York.....	Cornell University.....	Ithaca.....	Numerous courses in gen. agr. and agr. for teachers.
	Columbia University, Teachers' College.....	New York.....	Gen. agr. with field work, nature study, agr. for teachers, 6 wks.
	New York University.....	New York.....	School gardening only.
North Carolina.....	Syracuse University.....	Syracuse.....	Gen. agr., 6 wks.
	East Carolina Teachers' Training School.....	Greenville.....	Agr. for teachers.
	State Normal and Industrial College.....	Greensboro.....	El. agr. and nature study, 8 wks.
North Dakota.....	University of North Carolina.....	Chapel Hill.....	El. agr., nat. study, gardening.
	Agricultural College.....	Agricultural College.....	6 wks. course, agr. for teachers.
Ohio.....	Jamestown College.....	Jamestown.....	Agr. for common schools, 6 wks.
	State Normal School.....	Mayville.....	El. agr., gardening, 6 wks.
	State Normal School.....	Valley City.....	6 wks. course for teachers.
	Antioch College.....	Yellow Springs.....	El. agr.
	Defiance College.....	Defiance.....	6 wks. course, el. agr.
	Dennison College.....	Granville.....	El. agr., sec. agr. nat. study, methods of teaching agr.
	Lebanon University.....	Lebanon.....	Agr. for teachers of rural schools, 8 wks. course.
	Miami University.....	Oxford.....	Agr. and nat. study for teachers, 6 wks.
	Muskingum College.....	New Concord.....	El. agr., 9 wks.
	Ohio Northern University.....	Ada.....	Gen. agr. and gardening, 8 wks.
Oklahoma.....	Ohio State University.....	Columbus.....	Gen. agr. for teachers, 8 wks.
	Otterbein University.....	Westerville.....	El. agr., 6 wks.
	State Normal College of Ohio University.....	Athens.....	El. agr. and gardening, 9 wks.
	West Lafayette College.....	West Lafayette.....	El. and sec. agr., teaching of agr., 8 wks.
	University of Wooster.....	Wooster.....	6 wks. course for teachers.
Oregon.....	Agricultural and Mechanical College.....	Stillwater.....	Agr. nat. study; gen. agr., with lab. work.
	Central Normal School.....	Edmond.....	El. agr., gardening, 10 wks.
	East Central State Normal School.....	Ada.....	Gen. agr., 10 wks.
Pennsylvania.....	Southwestern State Normal School.....	Weatherford.....	El. agr.; methods of teaching agr., 6 wks.
	Agricultural College.....	Corvallis.....	El. agr., gard., rural sociology.
	Oregon Normal School.....	Monmouth.....	Agr. for teachers.
South Carolina.....	Allegheny College.....	Meadville.....	El. agr., 6 wks.
	Geneva College.....	Beaver Falls.....	Agr., hort., agr. chem., 10 wks.
	Grove City College.....	Grove City.....	El. agr., 6 wks.
	Juanita College.....	Huntingdon.....	Gen. agr. and gardening, 6 wks.
	State College.....	State College.....	Agr. for teachers, 6 wks.
South Dakota.....	State Normal School.....	Westchester.....	Agr. and nat. study.
	Winthrop Normal College.....	Rock Hill.....	Agr. with methods of teaching. Rural economics.
Tennessee.....	Dakota Wesleyan University.....	Mitchell.....	Series of special lectures on agr. during 6 wks. summer term.
	Huron College.....	Huron.....	Agr. botany, 6 wks.
	Lutheran Normal School.....	Sioux Falls.....	El. agr. Methods of teaching, with special lectures on agr., 6 wks. session.
	Northern Normal and Industrial School.....	Aberdeen.....	El. agr. and nat. study.
	Sioux Falls College.....	Sioux Falls.....	El. agr., 6 wks.
	State College.....	Brookings.....	El. agr. for rural teachers, 6 wks.
	State Normal School.....	Valley City.....	Gen. and el. agr., gardening.
	Yankton College.....	Yankton.....	School in session throughout year. El. agr. taught in summer quarter.
	East Tennessee State Normal School.....	Johnson City.....	Brief course in el. agr.
	Lincoln Memorial University.....	Cumberland Gap.....	
	Morristown Normal and Industrial College.....	Morristown.....	

*List of institutions maintaining courses in agriculture in summer sessions—Continued.*

State.	Institution.	Location.	Nature of course offered.
Tennessee.....	West Tennessee State Normal School.	Memphis.....	Agr., with lab. and field work.
Texas.....	University of Tennessee.....	Knoxville.....	Gen. agr. and agr. ed., 6 wks.
	Agricultural and Mechanical College.	College Station....	6 wks. course for teachers.
	Baylor College.....	Belton.....	Agr. for teachers in rural schools.
	Baylor University.....	Waco.....	Agr. for teachers, with special lecture.
	Sam Houston Normal Institute.	Huntsville.....	El. agr., 8 wks.
	University of Texas.....	Austin.....	El. and gen. agr., 6 wks.; also agr. ed.
	North Texas State Normal School.	Denton.....	Agr., 8 wks.
Utah.....	Agricultural College.....	Logan.....	Agr. and nat. study, 6 wks.
Vermont.....	University of Vermont.....	Burlington.....	Agr. for teachers, 6 wks.
Virginia.....	Emory and Henry College.....	Emory.....	El. agr.
	College of William and Mary..	Williamsburg.....	(Summer session held at Dublin, Va.) El. agr., 8 wks.
	St. Paul Normal and Industrial School (colored).	Lawrenceville.....	One month, el. agr., with practical farm work.
	State Female Normal School..	Farmville.....	Agr. and nat. study.
	State Normal and Industrial School for Women.	Harrisonburg.....	Nat. study, gard., el. agr. Two sessions, 6 and 4 wks., respectively.
	State Summer School.....	Fredericksburg.....	El. agr., 4 wks.
	University of Virginia.....	Charlottesville.....	Gen. agr., nat. stud., gard., 6 wks.
	Virginia Normal and Industrial Institute (colored).	Petersburg.....	El. agr., nat. stud., gard., 6 wks.
	Virginia Union University (colored).	Richmond.....	El. agr., 6 wks.
Washington.....	State College.....	Pullman.....	Gen. agr.; methods of teaching agr., 6 wks.
	State Normal School.....	Bellingham.....	El. agr., 9 wks.
	State Normal School.....	Cheney.....	El. and gen. agr., gardening, 9 wks.
	State Normal School.....	Ellensburg.....	Agr., nat. study, gard.
West Virginia.....	University of Washington.....	Seattle.....	Gen. agr., hort., gardening.
	Davis and Elkins College.....	Elkins.....	El. agr.
	Fairmont State Normal School	Fairmont.....	El. agr.
	West Virginia University.....	Morgantown.....	El. and gen. agr., 9 wks.
Wisconsin.....	Outagamie County Training School.	South Kaukauna..	El. agr. for teachers; also lab. course, 6 wks. session.
	River Falls State Normal School.	River Falls.....	El. agr., 8 wks.
	State Normal School.....	La Crosse.....	Agr., 6 wks.
	State Normal School.....	Oshkosh.....	Agr., 6 wks.
	State Normal School.....	Superior.....	El. agr., 6 wks.
	State Normal School.....	Whitewater.....	El. agr. for teachers.
	University of Wisconsin.....	Madison.....	Grad. and undergrad. work in gen. agr. Courses for teachers of rural and sec. schools.
	Waupaca County Normal School.	New London.....	El. agr. for teachers.
Wyoming.....	University of Wyoming.....	Laramie.....	Gen. agr., 6 wks.

## SPECIAL SHORT OR EXTENSION COURSES.

An effort on the part of some of the colleges and normal schools to give special facilities for the training of employed teachers in the subject of agriculture is shown by the fact that in a number of instances special short courses in agriculture are offered during the regular school session, usually in the spring term and lasting through the months of April and May. Thus, the Agricultural and Mechanical College of North Carolina holds a special "May school" for teachers at which agriculture is taught. Some of the schools continue their sessions into June for the benefit of teachers whose schools close early in the spring. Harvard University offers special work



for graduate students in a term lasting from February to November, provision being made, however, for students to work during the summer only, if desired. A bachelor's degree is required for admission to this work. Columbia University offers to employed teachers the advantages of afternoon, evening, and Saturday classes during the regular school year, and agriculture is one of the subjects thus taught. Afternoon and Saturday classes in agriculture for teachers are also offered in the Fresno State Normal School, Fresno, Cal.

Agriculture has come in recent years to hold a prominent place on the programs of teachers' institutes. However, these institutes are generally in session only one or two weeks at the most, hence the instruction given there must necessarily be more or less cursory and superficial. Nevertheless, these institutes have doubtless been of much influence in arousing the interest of teachers in the subject of agriculture and in the inspiration they have given to teachers to become better prepared. The plans on which institutes are held vary greatly in the different States, and in many States they are being gradually superseded either by brief inspirational teachers' meetings on the one hand, or on the other hand by summer normals, in which the teachers of a number of counties meet together at some central location, often at some college or other institution in connection with the ordinary summer school. This plan is followed, for example, in Virginia and in South Dakota. At Aberdeen, S. Dak., 10 counties will hold their joint institute a period of one week in connection with the summer school of the Northern Normal and Industrial School. A very promising plan, devised by Garland A. Bricker, of the Ohio State University, has been successfully put into operation by him in Ohio. This plan is to organize and conduct special extension schools for teachers in various counties in the State, these schools being in charge of instructors furnished by the extension staff of the State agricultural college. The funds necessary to carry on these extension schools are, according to a ruling of the Attorney General of the United States, available to the land-grant colleges under a proviso of the Nelson Amendment (34 Stat. L., 1256, 1281), approved March 4, 1907, by which a portion of the funds appropriated by this act from the Federal Treasury for the use of these colleges may be used "for providing courses for the special preparation of instructors for teaching the elements of agriculture and the mechanic arts."

Prof. Bricker's plan is to organize a teachers' extension school in cooperation with the local school authorities whenever a sufficient number of teachers in one locality have signified their desire to enroll and take the course, on much the same plan as that followed by many agricultural colleges in conducting farmers' short courses. To cover local expenses a small fee is charged each teacher who

enrolls. Prof. Bricker's plan is to hold the sessions of the school on Saturdays, either of consecutive or alternate weeks, the session continuing for six Saturdays. There would seem to be no reason why a similar teachers' short course might not be conducted continuously for a week or two weeks in connection with the teachers' institute, or the short course made a substitute for the regular institute or elective therefor at the option of the teacher.

The following is a list of institutions offering short or extension courses in agriculture for teachers:

*List of institutions offering special short courses or extension courses in agriculture for teachers.*

State.	Institution.	Location.	Nature of course.
California.....	Fresno State Normal School...	Fresno.....	Evening and Saturday classes in agriculture for teachers.
Indiana.....	Moore's Hill College .....	Moore's Hill.....	Special teachers' course during spring term.
Kansas.....	Vincennes University..... State Agricultural College.....	Vincennes..... Manhattan.....	Do. Special courses during spring term for rural and high-school teachers.
Massachusetts.....	Harvard University (Graduate School of Applied Science).	Cambridge.....	Term from February to November. Graduate work in entomology and applied biology. No work in agriculture, as such, offered. Students may take summer work only.
Michigan.....	Gratiot County Normal.....	Ithaca.....	Ten weeks' course in elementary agriculture offered in spring term.
Mississippi.....	Agricultural and Mechanical College. Industrial Institute and College.	Agricultural College. Columbus.....	Short course for teachers during spring term. Two terms of six weeks each in spring, with special course for teachers.
New York.....	Columbia University.....	New York.....	Afternoon and Saturday classes in agriculture. Lecture and laboratory work.
North Carolina.....	Agricultural and Mechanical College.	West Raleigh.....	Special "May school" for teachers, with courses in agriculture and gardening.
Ohio.....	State University.....	Columbus.....	Special extension schools in agriculture for teachers, at various points in State. Held on Saturdays.
Pennsylvania.....	Central State Normal.....	Lock Haven.....	Seven weeks' course in agriculture and nature study in spring term, for teachers.
	Clarion State Normal.....	Clarion.....	Course in agriculture and nature study in spring term, for teachers.
	Millersville State Normal.....	Millersville.....	Course in agriculture and nature study during spring term, for teachers.
West Virginia.....	State Normal School.....	Glenville.....	Elementary agriculture during spring term.
Wisconsin.....	Oneida County Teachers' Training School.	Rhineland.....	School continues in session until last of June for benefit of teachers. Agriculture offered in spring term.

#### CORRESPONDENCE COURSES.

The study of agriculture by correspondence has grown rapidly in favor in the last few years, and this method of study has many advantages which adapt it specially to the needs of employed teachers. Probably chief among these advantages is the fact that by this plan the work can be taken up and pursued at the convenience of the

student without any interruption of his regular employment and without taking up the greater part of the vacation period. The expense incident to a correspondence course is usually small. Another advantage lies in the fact that correspondence work can be carried on by single individuals, and the student is not required, therefore, to attend upon the sessions of any institution, thus saving money, time, and travel. It is undoubtedly true that under the guidance of a good correspondence course much more systematic and thorough work can be done than if the student depends upon mere general reading.

On the other hand, correspondence study undoubtedly has many disadvantages. It is hardly possible for the student to do more than an elementary grade of work by this method, and there is considerable danger of his getting incorrect ideas on the more complex questions which arise, because of the absence of any one to question him and to correct his inaccurate impressions. Furthermore, there is a lack of enthusiasm in isolated study which is generally found when several students are associated together. No one can hope to learn as much or as readily by the correspondence method as when associated with other students in a class under the direct supervision of a competent instructor. The personality of such an instructor is a great factor in class instruction, which is wholly lacking in correspondence work. Another great disadvantage of correspondence work lies in the practical impossibility of doing thorough laboratory or experimental work. Some simple experiments which do not require any apparatus, or only such equipment as may be constructed at home, may, of course, be performed; and some field observations and experiments may be conducted if the student is industrious and conscientious enough, but at best the work of this sort must be more or less crude and unsatisfactory.

The popular demand for correspondence courses in agriculture is evidenced by the number of State and private institutions in which such courses are now offered. The results of a recent investigation by this office show that at present there are in the United States and its territories, as nearly as can be learned, 25 State institutions and 5 private schools in which some regularly established correspondence work in agriculture may be done. Besides, there are five private correspondence schools which offer more or less complete courses in agriculture. In at least seven of the State schools college credit may be obtained by students having the proper qualifications upon passing satisfactory examinations. In one, credit may be prescribed by the State superintendent of public instruction. In several others certificates are awarded for the successful completion of a certain number of courses. The number of distinct courses in agriculture offered by these various institutions ranges from 1 to 56. Nearly all these institutions offer courses in elementary agriculture or agricultural

pedagogy which are adapted especially for teachers in rural and elementary schools. Many of the courses in the State institutions are free to residents of the State except for the cost of necessary textbooks and postage charges. Others of the State schools charge small fees, the highest being \$5 per course. The tuition charges in the private correspondence schools are generally about \$20 to \$25 for the complete courses, and frequently the necessary textbooks are furnished.

The plan of work in the correspondence courses is in general the same. Certain parts of the textbooks or bulletins are assigned to be studied, and when these have been read the student is required either to outline the contents of the assignment or to fill out certain question blanks as a kind of examination on the lesson. These written outlines or reports are then mailed to the school, where mistakes are checked up and corrected either by letter or by marking on the report references to the page of the text where the correct statement is found, the corrected report being then returned to the student. In a few instances the student is required to perform simple experiments in addition to the textbook studies.

Below is a list of institutions from which correspondence instruction in agriculture may now be obtained. Most of the State schools accept for enrollment nonresident students, though in several instances the fees are higher for persons not residing in the home States.

*Correspondence courses in agriculture.*  
[In public and private colleges and normal schools.]

State.	Institution.	Location.	Person in charge.	Num- ber of courses.	Cost.	Credit given.	Nature of work.	Remarks.
Arkansas.....	University of Ar- kansas.	Fayetteville.....	Prof. J. M. Wilson.....	10	Free, except books and postage.	No credit.....	Studies of texts and bulletins.	Course I, elementary agriculture specially for teachers.
California.....	University of Cali- fornia.	Berkeley.....	Dean Thomas F. Hunt.	.....	No fees.....	.....do.....	Studies of texts, bulle- tins, and prepared lessons.	Several courses offered in preparation.
Florida.....	University of Florida	Gainesville.....	Dean J. J. Vernon.....	14	\$1 registration and cost of supplies.	.....do.....	Studies of texts, etc., experiments.	Course I, elementary agriculture specially for teachers.
Do.....	Agricultural and Me- chanical College for Negroes.	Tallahassee.....	Pres. N. B. Young.....	1	No fees.....	.....do.....	Study of texts.....	Course is for teachers.
Idaho.....	State Normal School	Albion.....	Pres. G. A. Axline.....	1	\$5 enrollment fee.....	Credit on normal course.	Study of text; refer- ence reading.	Elementary agricul- ture and gardening for teachers.
Iowa.....	Western Normal College.	Shenandoah.....	Pres. J. M. Hussey.....	1	\$15 for full course.....	Credit on college course.	Study of texts.....	Intended for teachers.
Kansas.....	State Agricultural College.	Manhattan.....	Prof. H. L. Kent.....	56	From \$1 to \$4 per course.	College credit under certain conditions.	Studies of texts and bulletins.	Course A I, elementary agriculture, adapted for teachers.
Do.....	Highland College.....	Highland.....	Pres. W. C. T. Adams.....	1	\$10 for full course.....	Credit on college course.	.....do.....	Elementary agricul- ture for teachers.
Do.....	State Manual Train- ing Normal School.	Pittsburg.....	Prin. Geo. E. Myers.....	4	.....	No credit.....	Lesson outlines, with reference readings from texts and bul- letins.	Course I is in elemen- tary agriculture, suit- ed to teachers.
Maine.....	University of Maine.	Orono.....	Dean L. S. Merrill.....	11	Free, except sup- plies.	No credit toward degree.	Studies of texts, etc.....	Course 10, "Agricul- ture in com- mon schools," and Course II, "Agricultural Ed- ucation," especially for teachers.
Massachusetts.....	Agricultural College.	Amherst.....	Prof. W. D. Hurd.....	16	\$1 per course, plus cost of supplies.	No credit.....	Prepared lessons; texts for collateral read- ing.	Course intended for poultry clubs.
Mississippi.....	Agricultural and Me- chanical College.	Agricultural Col- lege.	Prof. J. K. Morrison.....	1	No fees.....	.....do.....	Bulletins prepared by college.	Course intended for rural teachers.
Do.....	Normal College.....	Hattiesburg.....	Prof. T. F. Jackson.....	1	\$2 enrollment fee.....	Credit allowed on normal course.	Outlines for studies of texts and bulletins.	Intended for farmers, but open to teachers.
Missouri.....	University of Mis- souri.	Columbia.....	Secy. S. D. Groner.....	14	\$3.50 per credit- hour; bulletins free.	Credit on two-year course.	Study of bulletins.....	

*Correspondence courses in agriculture Continued.*

State.	Institution.	Location.	Person in charge.	Number of courses.	Cost.	Credit given.	Nature of work.	Remarks.
Nebraska	University of Nebraska.	Lincoln	Prof. A. A. Reed	3	\$5 per course, cost of texts extra.	College credit may be obtained.	Study of texts, etc.	Two courses for high-school teachers; one for rural teachers. Course 1, agricultural for teachers.
New Mexico	College of Agriculture and Mechanic Arts.	State College	J. O. Miller, registrar.	3	\$1 to cover postage; texts to be purchased.	No credit.	do.	
Oregon	Agricultural College.	Corvallis	Prof. R. D. Hetzel	3	\$1 enrollment plus cost of books, etc.	do.	Study of texts.	
Pennsylvania	State College.	State College	Prof. Thos. I. Mairs	25	Cost of supplies only.	No credit toward degree.	Study of texts, etc.	Course 73, pedagogy of agriculture.
South Carolina	Agricultural (Clemson College).	Clemson College	Prof. W. W. Long	1	\$1 enrollment to cover postage.	No credit.	do.	All courses intended for teachers.
South Dakota	Agricultural and Mechanical College.	Brookings	Prof. A. A. Brigham	20	From \$0.50 to \$1 per course, plus supplies.	do.	do.	Course D, teachers course.
Do.	State Normal.	Madison	Prof. L. G. Aderton	4	No charge except cost of texts.	Prescribed by State superintendent.	Studies of texts, etc., with experiments.	All courses intended for teachers.
Texas	Agricultural and Mechanical College.	College Station	Prof. O. H. Sellers	20	From \$0.50 to \$3.50 per course.	No credit except certificate.	Study of texts, bulletins, etc.	Course 1, elementary agriculture for teachers.
Utah	Agricultural College.	Logan	Prof. Geo. B. Hendricks	12	\$5 per course	College credit may be obtained.	Study of texts; field and laboratory work.	Course in nature study and agriculture, so arranged that it may be used by teachers in school work as well as studied by the teacher.
Vermont	State Normal.	Castleton	Prof. H. K. Farrar	1	\$1 enrollment; text-book furnished free.	None.	Special lessons prepared for course.	
Wyoming	University of Wyoming.	Laramie	Prof. T. S. Parsons	2	\$5 per course.	College credit may be obtained.	Study of texts and bulletins.	

*Private correspondence schools.*

The following private correspondence schools advertise full courses in agriculture:

American Farmers School, Minneapolis, Minn.

Correspondence College of Agriculture, Fort Wayne, Ind.

Home Correspondence School, Springfield, Mass.

International Correspondence Schools, Scranton, Pa.

Interstate Correspondence School, Chicago, Ill.

## READING COURSES.

Several of the State agricultural colleges, while not conducting regular correspondence work in agriculture, offer assistance by means of reading courses to persons wishing to engage in home study. These reading courses are based either upon standard textbooks suggested to the student or upon bulletins issued by the college, in some cases particularly for this purpose. In general, the courses are not intended for teachers but rather for farmers and farmers' wives, although teachers are encouraged to enroll and may derive much benefit from the courses pursued. No credit, so far as can be learned, either toward college degree or certification is allowed for the completion of such courses in any instance.

*List of institutions offering reading courses in agriculture.*

State.	Institution.	Location.	Nature of course.	Fees.
Arizona.....	University of Arizona.	Tucson.....	"Timely Hints for Farmers." Bulletins.	None.
Michigan.....	Agricultural College.	East Lansing.	Based on standard texts. Written reports required.	\$1 enrollment for nonresidents.
New Hampshire....	New Hampshire College.	Durham.....	Based on standard texts. Organized for farmers, but open to teachers.	None.
New York.....	Cornell University, State College of Agriculture.	Ithaca.....	Special series of bulletins published by college. Questions answered where desired. Two courses—The Farm and The Farm Home.	
Ohio.....	State University, College of Agriculture.	Columbus.....	Farmers' reading course based on special series of bulletins.	None.

## A SUGGESTED READING COURSE IN AGRICULTURE BASED ON FARMERS' BULLETINS.

The output of agricultural literature in recent years has been prodigious. Numerous farm papers, textbooks, publications of agricultural societies and associations, State and Government publications, all offer opportunity for learning about agriculture. As a rule the information contained in farm papers is more or less scrappy and incomplete, hence it can seldom if ever be used as the basis of systematic study. Textbooks are excellent when they can be obtained, but their cost is considerable, hence the average teacher is as a rule unable to procure more than one or two, if any, and these are generally very elementary in character and often not well selected. Since many of the State and Government publications are technical in character, it is often hard to make a proper selection from this source. In the belief that there are many teachers who would be glad to avail themselves of an opportunity to follow out a thorough course in agricultural reading if one were outlined for them and the necessary text material placed within their reach, the following list of the free publications of the United States Department of Agriculture has been prepared as the basis of such a course.

Unfortunately this list is incomplete in some subjects on which no publications of a popular character are now available. For example, there are few bulletins to be listed dealing with cattle, none with horses, and none of a general nature treating of cotton. Doubtless these and similar deficiencies in this list will be supplied at some time in the future by the department. In the meantime in many of the States bulletins may be obtained from the State agricultural college or experiment station to supplement this list.

With but few exceptions the publications listed are Farmers' Bulletins, since they are generally less technical in character than the bureau circulars and bulletins, and the intention is to select only publications more or less popular in style which may be comprehended easily by the ordinary reader. Even as it is, the Farmers' Bulletins are themselves unsatisfactory in many instances for this kind of use, since they are more adapted for reference purposes than for general reading and study.

On a number of the topics for which publications have been selected and classified in this list additional publications dealing in a more detailed manner with particular phases of the general topic can be obtained if desired. For example, under the subject of "Horticulture—Fruits," there are available in addition to those listed a number of Farmers' Bulletins dealing with particular kinds of fruits, such as strawberries, raspberries, cranberries, and others. Information as to these bulletins may be obtained by reference to the complete list of available Farmers' Bulletins issued by the Division of Publications, United States Department of Agriculture, Washington, D. C.

All the publications listed may be obtained free of cost on application to the United States Department of Agriculture, so long as they are available. Should it happen that any are not available for free distribution when requested they may generally be obtained by purchase from the Superintendent of Documents, Government Printing Office, Washington, D. C. His price for all Farmers' Bulletins and circulars is 5 cents each, but bureau bulletins have various prices, depending upon the cost of publication in each instance.

Perhaps the best method to be followed by the individual reader in using these bulletins as a systematic reading course is to secure the bulletins listed under some single topic, such as "Soils," for example, and thoroughly master all that the publications contain on this subject before going on with the next topic. It will be found very helpful, and a good way to fix important information in the mind as well as to test the reader's understanding of what he has read, if the student prepares an outline of the important points gleaned from the text matter as the reading proceeds. It is important, however, that this outline be made in the reader's own language, avoiding a mere copying of extracts and quotations from the text, since the benefit to be derived from this exercise lies in the possi-



bility it affords of testing the reader's ability to convert the author's thought into such form that it actually becomes his own. Inability to tell in one's own words what has been read is good evidence that the reading has not been done understandingly. The work of selecting the essential thoughts from the text matter and arranging them in a logical outline will help to organize the ideas in the mind of the reader, and to fix them more permanently in his memory, than would be possible if the reading were done without any attempt at picking out and writing down the important facts. Besides, this exercise will act as a sort of brake to safeguard against too rapid and cursory reading.

Where there are several persons in the same locality who wish to pursue the reading course it will be a good plan for them to unite in a reading club, and meet occasionally to quiz one another. In this way the benefits of an exchange of ideas and of the increased enthusiasm arising from association will be derived. It is suggested that county superintendents might be able to work out a plan whereby a few sets of these publications could be exchanged between groups of teachers in the same county, and thus be used as the basis of systematic agricultural reading-club work.

*A list of publications of the United States Department of Agriculture suggested for an agricultural reading course.*

## I. AGRONOMY.

Topic.	Title.	Publication.
Soils.....	Soil Fertility..... The Renovation of Worn-Out Soils..... Soil Conservation.....	Farmers' Bulletin 257. Farmers' Bulletin 245. Farmers' Bulletin 406.
Fertilizers.....	Commercial Fertilizers..... Barnyard Manure..... Leguminous Crops for Green Manuring.....	Farmers' Bulletin 44. Farmers' Bulletin 192. Farmers' Bulletin 278.
Plant production.....	The Propagation of Plants..... Testing Farm Seeds in the Home and in the Rural School.....	Farmers' Bulletin 157. Farmers' Bulletin 428.
Cereal crops.....	Barley: Growing the Crop..... Corn Cultivation..... Seed Corn..... Harvesting and Storing Corn..... Oats: Growing the Crop..... Oats: Distribution and Uses..... Rice Culture..... Durum Wheat.....	Farmers' Bulletin 443. Farmers' Bulletin 414. Farmers' Bulletin 415. Farmers' Bulletin 313. Farmers' Bulletin 424. Farmers' Bulletin 420. Farmers' Bulletin 417. Farmers' Bulletin 534.
Fiber crops.....	Cotton Seed and Its Products..... Sea Island Cotton..... Flax Culture.....	Farmers' Bulletin 36. Farmers' Bulletin 302. Farmers' Bulletin 274.
Forage crops.....	The Adulteration of Forage Plant Seeds..... Our Native Pasture Plants..... Alfalfa..... Red Clover..... Cowpeas..... Millets..... Rape..... Soy Beans..... Vetches.....	Farmers' Bulletin 382. Yearbook Sep. 223. Farmers' Bulletin 339. Farmers' Bulletin 455. Farmers' Bulletin 318. Farmers' Bulletin 101. Farmers' Bulletin 164. Farmers' Bulletin 372. Farmers' Bulletin 515.
Truck crops.....	Good Seed Potatoes and How to Produce Them..... Potato Culture..... The Sugar Beet..... Sweet Potatoes..... Broom Corn..... Growing and Curing Hops..... Tobacco Curing..... The Peanut.....	Farmers' Bulletin 533. Farmers' Bulletin 35. Farmers' Bulletin 52. Farmers' Bulletin 324. Farmers' Bulletin 174. Farmers' Bulletin 304. Farmers' Bulletin 523. Farmers' Bulletin 431. Farmers' Bulletin 28.
Miscellaneous field crops.....	Weeds, and How to Kill Them..... Important Insecticides..... Cotton Wilt..... The Boll Weevil Problem..... The Smuts of Wheat, Oats, Barley, and Corn.....	Farmers' Bulletin 127. Farmers' Bulletin 333. Farmers' Bulletin 512. Farmers' Bulletin 507.
Crop pests.....		

*A list of publications of the United States Department of Agriculture suggested for an agricultural reading course—Continued.*

## II. ANIMAL HUSBANDRY.

Topic.	Title.	Publication.
Bees.....	Bees.....	Farmers' Bulletin 447.
Birds.....	Some Common Birds.....	Farmers' Bulletin 54.
	Some Common Game, Aquatic, and Rapacious Birds in Their Relation to Man.	Farmers' Bulletin 497.
	Fifty Common Birds of Farm and Orchard.	Farmers' Bulletin 513.
	Does it Pay the Farmer to Protect Birds?	Yearbook Sep. 443.
Cattle.....	The Dairy Herd.....	Farmers' Bulletin 55.
	Breeds of Dairy Cattle.....	Farmers' Bulletin 106.
	Tuberculosis.....	Farmers' Bulletin 473.
Hogs.....	Pig Management.....	Farmers' Bulletin 205.
	Hog Cholera.....	Farmers' Bulletin 379.
Sheep.....	Raising Sheep for Mutton.....	Farmers' Bulletin 96.
Poultry.....	Standard Varieties of Chickens.....	Farmers' Bulletin 51.
	Ducks and Geese.....	Farmers' Bulletin 64.
	Turkeys.....	Farmers' Bulletin 200.
	The Guinea Fowl.....	Farmers' Bulletin 234.
	Poultry Management.....	Farmers' Bulletin 287.
Feeds and feeding.....	The Feeding of Farm Animals.....	Farmers' Bulletin 22.
	Sheep Feeding.....	Farmers' Bulletin 79.
	Principles of Horse Feeding.....	Farmers' Bulletin 170.

## III. HORTICULTURE.

Fruits.....	Small Fruit Culture for Market.....	Farmers' Bulletin 47.
	The Home Fruit Garden.....	Farmers' Bulletin 154.
	Pruning.....	Farmers' Bulletin 181.
	The Apple and How to Grow It.....	Farmers' Bulletin 113.
	Grape Propagation, Pruning, and Training.....	Farmers' Bulletin 471.
	The Pear, and How to Grow It.....	Farmers' Bulletin 482.
	Fungicides and Their Use in Preventing Diseases of Fruits.	Farmers' Bulletin 243.
	Information about Spraying for Orchard Insects.....	Yearbook Sep. 480.
Flowers.....	Annual Flowering Plants.....	Farmers' Bulletin 195.
Vegetables.....	The Home Vegetable Garden.....	Farmers' Bulletin 255.
	Frames as a Factor in Truck Growing.....	Farmers' Bulletin 460.
Landscaping.....	Beautifying Home Grounds.....	Farmers' Bulletin 185.
	Lawn Soils and Lawns.....	Farmers' Bulletin 494.

## IV. FORESTRY.

General.....	Primer of Forestry, Part I: The Forest.....	Farmers' Bulletin 173.
	Primer of Forestry, Part II: Practical Forestry.....	Farmers' Bulletin 358.
	Trees of the United States Important in Forestry.....	Yearbook Sep. 112.
Tree planting.....	Forest Planting and Farm Management.....	Farmers' Bulletin 228.
	Tree Planting by Farmers.....	Yearbook Sep. 566.
Forest influences.....	Surface Conditions and Stream Flow.....	Forest Ser. Circ. 176.
Forest fires.....	The Protection of Forests from Fires.....	Forest Ser. Bul. 82.
	Forest Fires.....	Forest Ser. Bul. 117.
Wood preservation.....	The Preservative Treatment of Farm Timbers.....	Farmers' Bulletin 381.
Forest conservation.....	Progress in Saving Forest Waste.....	Yearbook Sep. 534.

## V. AGRICULTURAL ENGINEERING.

Farm buildings.....	Practical Suggestions for Farm Buildings.....	Farmers' Bulletin 126.
	Modern Conveniences for the Farm Home.....	Farmers' Bulletin 270.
Farm mechanics.....	The Use of Concrete on the Farm.....	Farmers' Bulletin 461.
	Corn Harvesting Machinery.....	Farmers' Bulletin 303.
	The Cream Separator on Western Farms.....	Farmers' Bulletin 201.
	The Use of Alcohol and Gasoline in Farm Engines.....	Farmers' Bulletin 277.
	Repair of Farm Equipment.....	Farmers' Bulletin 347.
Roads.....	The Use of the Split-Log Drag on Earth Roads.....	Farmers' Bulletin 321.
	Sand-Clay and Burnt-Clay Roads.....	Farmers' Bulletin 311.
	Macadam Roads.....	Farmers' Bulletin 338.
	Benefits of Improved Roads.....	Farmers' Bulletin 505.
Drainage.....	Drainage of Farm Lands.....	Farmers' Bulletin 187.
Irrigation.....	Practical Information for Beginners in Irrigation.....	Farmers' Bulletin 263.
	How to Build Small Irrigation Ditches.....	Farmers' Bulletin 158.

*A list of publications of the United States Department of Agriculture suggested for an agricultural reading course—Continued.*

VI. AGRICULTURAL TECHNOLOGY.

Topic.	Title.	Publication.
Dairying.....	Butter Making on the Farm..... Cheese Making on the Farm.....	Farmers' Bulletin 241. Farmers' Bulletin 166.
Sirup and sugar making	The Care of Milk and Its Use in the Home..... The Production of Maple Sirup and Sugar..... Sorghum Sirup Manufacture.....	Farmers' Bulletin 413. Farmers' Bulletin 516. Farmers' Bulletin 477.

VII. AGRICULTURAL ECONOMICS.

Farm management.....	What Is Farm Management..... Types of Farming in the United States..... Replanning a Farm for Profit.....	Bur. Pl. Ind. Bul. 259. Yearbook Sep. 487. Farmers' Bulletin 370.
Farm labor.....	The Supply and Wages of Farm Labor..... Seasonal Distribution of Labor on the Farm.....	Yearbook Sep. 528. Yearbook Sep. 567.
Farm accounts.....	Farm Bookkeeping.....	Farmers' Bulletin 511.
Marketing.....	Marketing Farm Produce..... Cooperation in the Handling and Marketing of Fruit..	Farmers' Bulletin 62. Yearbook Sep. 546.

VIII. AGRICULTURAL EDUCATION.

General.....	Education for Country Life..... The American System of Agricultural Education..... The Teaching of Agriculture in the Rural Common Schools. The School Garden.....	Office Expt. Stas. Circ. 84. Office Expt. Stas. Circ. 106, Rev. Office Expt. Stas. Circ. 60. Farmers' Bulletin 218.
School gardens.....	Forest Nurseries for Schools.....	Farmers' Bulletin 423.
Agricultural clubs.....	Boys' and Girls' Agricultural Clubs..... Organization and Instruction in Boys' Corn-Club Work	Farmers' Bulletin 385. Bur. Pl. Ind. Doc. 803.
Special days in schools.	Arbor Day..... Bird Day in the Schools.....	Forest Service Circ. 96. Biolog. Survey Circ. 17.
School equipment.....	The Use of Illustrative Material in Teaching Agriculture in Rural Schools.	Yearbook Sep. 382.

ADDITIONAL COPIES of this publication may be procured from the SUPERINTENDENT OF DOCUMENTS, Government Printing Office, Washington, D. C., at 5 cents per copy







